

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0002] beginning at page 2, line 20 of the originally filed disclosure with the following paragraph:

[0002] The following co-pending and commonly-assigned U.S. Patent Applications, filed on even date herewith, are also incorporated herein by reference:

1. U.S. patent application entitled "MODULAR IMPLANTABLE MEDICAL DEVICE," to Wahlstrand et al., Ser. No. [[_____]] 10/731,869, assigned Attorney Docket No.: 1023-318US01/P-10891.01, filed Dec. 9, 2003;
2. U.S. patent application entitled "IMPLANTATION OF LOW-PROFILE IMPLANTABLE MEDICAL DEVICE," to Singhal et al., Ser. No. [[_____]] 10/731,868, assigned Attorney Docket No.: 1023-330US01/P-11795.00, filed Dec. 9, 2003;
3. U.S. patent application entitled "OVERMOLD FOR A MODULAR IMPLANTABLE MEDICAL DEVICE," to Singhal et al., Ser. No. [[_____]] 10/730,873, assigned Attorney Docket No.: 1023-332US01/P-11798.00, filed Dec. 9, 2003;
4. U.S. patent application entitled "COUPLING MODULE FOR A MODULAR IMPLANTABLE MEDICAL DEVICE," to Janzig et al., Ser. No. [[_____]] 10/731,699, assigned Attorney Docket No.: 1023-331US01/P-11796.00, filed Dec. 9, 2003;
5. U.S. patent application entitled "LEAD INTERCONNECT MODULE OF A MODULAR IMPLANTABLE MEDICAL DEVICE," to Singhal et al., Ser. No. [[_____]] 10/730,878, assigned Attorney Docket No.: 1023-334US01/P-11799.00, filed Dec. 9, 2003;
6. U.S. patent application entitled "LOW PROFILE IMPLANTABLE MEDICAL DEVICE," to Janzig et al., No. [[_____]] 10/730,877, assigned Attorney Docket No.: 1023-335US01/P-11801.00, filed Dec. 9, 2003;
7. U.S. patent application entitled "CONCAVITY OF A IMPLANTABLE MEDICAL DEVICE AND MODULES THEREOF," to Wahlstrand et al., Ser. No. [[_____]] 10/731,867, (Attorney assigned Attorney Docket No.: 1023-336US01/P-11800.00, filed Dec. 9, 2003; and
8. U.S. patent application entitled "MODULAR IMPLANTABLE MEDICAL DEVICE," to Wahlstrand et al., Ser. No. [[_____]] 10/731,638, assigned Attorney Docket No.: P-20542.00, filed Dec. 9, 2003.

Please replace paragraph [0010] beginning at page 4, line 18 of the originally filed disclosure with the following paragraph:

[0010] However, too much intermodular motion can compromise the structural integrity of the coupling module, which may lead to failure of a modular implantable medical device. Consequently, the overmold includes as least one motion reduction element to reduce relative motion between modules of a modular implantable medical device. The motion reduction element may couple modules, and may include, for example a wire-like element of a cloth element. In some embodiments, components of the overmold provide motion restriction elements that interact to reduce relative motion between modules with which the components are associated.

Please replace paragraph [0029] beginning at page 7, line 11 of the originally filed disclosure with the following paragraph:

[0029] However, modular implantable medical device 101 is not limited to delivery of stimulation to the brain of patient 100, and may be employed with leads ~~16~~ 102 deployed anywhere in the head or neck including, for example, leads deployed on or near the surface of the skull, leads deployed beneath the skull such as near or on the dura mater, leads placed adjacent cranial or other nerves in the neck or head, or leads placed directly on the surface of the brain. Moreover, modular implantable medical device 101 is not limited to implantation under the scalp of patient 100. Indeed, modular implantable medical device 101 may be implanted anywhere within patient 100. For example, modular implantable medical device 101 can be implanted within the neck of patient 100, and deliver stimulation to the vagus nerve or the cervical region of the spinal cord.

Please replace paragraph [0035] beginning at page 9, line 3 of the originally filed disclosure with the following paragraph:

[0035] Control module 210 includes control electronics for controlling the monitoring and/or therapy delivery functions of modular implantable medical device 201, such as a microprocessor, and may include therapy delivery circuitry. Power source module 211 includes a power source that provides energy to control module 210, which in some embodiments is a rechargeable power

source such as a rechargeable battery and/or capacitor. Recharge module 212 includes a recharge coil for inductively receiving energy to recharge a rechargeable power source within power source module 211. Additional details regarding modules 210, 211 and 212, additional or alternative modules for a modular implantable medical device, may be found in commonly assigned U.S. Patent Application Ser. No. 10/731,869, entitled "MODULAR IMPLANTABLE MEDICAL DEVICE," assigned Attorney Docket No.: 1023-318US01/P 10891.00; commonly assigned U.S. Patent Application Ser. No. 10/731,699, entitled "COUPLING MODULES OF FOR A DISTRIBUTED MODULAR IMPLANTABLE MEDICAL DEVICE," assigned Attorney Docket No.: 1023-333US01/P 11796.00; and commonly assigned U.S. Patent Application Ser. No. 10/730,878, entitled "LEAD INTERCONNECT MODULE OF A MODULAR IMPLANTABLE MEDICAL DEVICE[[],]." assigned Attorney Docket No.: 1023-334US01/P 11799.00.

Please replace paragraph [0036] beginning at page 9, line 19 of the originally filed disclosure with the following paragraph:

[0036] As illustrated in FIG. 2, modular implantable medical device 201 includes an overmold 214. Overmold 214 at least partially encapsulates modules 210-212. Further, as will be described in greater detail below, lead connection modules 213 may be formed in overmold 214. Overmold integrates modules 210-212 into a structure. Overmold 214 may provide a flexible structure that permits the device 501 201 to conform to a variety of implant locations. Use of the term "overmold" herein is not intended to limit the invention to embodiments in which overmold 214 is a molded structure. Overmold 214 may be a molded structure, or may be a structure formed by any process.

Please replace paragraph [0037] beginning at page 9, line 27 of the originally filed disclosure with the following paragraph:

[0037] In some embodiments, overmold 214 may be curved to match the shape of the location within a patient in which the device is being implanted. For example, implantation of modular implantable medical device 201 under the scalp of a patient may be accomplished if overmold 214 is concave to substantially conform to the shape of the cranium of the patient. Concavity of

modular implantable medical devices is described in greater detail in a commonly-assigned U.S. Patent Application Ser. No. 10/731,867, entitled "CONCAVITY OF AN IMPLANTABLE MEDICAL DEVICE[.,.]." assigned Attorney Docket No.: 1023-336US01/P-11800.00. Any number of shapes may be used to match a particular implantable medical device 201 to an implantation location for a device.

Please replace paragraph [0040] beginning at page 10, line 24 of the originally filed disclosure with the following paragraph:

[0040] A coupling module may be flexible in a plurality of directions to provide modules of a modular implantable medical device with multiple degrees of freedom of motion with respect to each other. In exemplary embodiments, a coupling module provides at least three degrees of motion, and the degrees of motion provided include rotational motion. Further details regarding the configuration and/or construction of a coupling module to provide such flexibility may be found below, and within a commonly assigned U.S. Patent Application Ser. No. 10/731,699, entitled "COUPLING MODULES FOR A DISTRIBUTED MODULAR IMPLANTABLE MEDICAL DEVICE[.,.]." assigned Attorney Docket No.: 1023-333US01/P-11796.00, filed on even date herewith.

Please replace paragraph [0042] beginning at page 11, line 10 of the originally filed disclosure with the following paragraph:

[0042] FIGS. 3A-3F are schematic diagrams illustrating various arrangements of multiple modules within a modular implantable medical device 301 according to various embodiments of the present invention. In each of these embodiments, modular implantable medical device 401 301 has three modules as discussed above in reference to FIG. 2: a control module 2310, a power source module 2311, and a recharge module 2312. These modules may be arranged into a variety of configurations, including those illustrated, as long as any required interconnections needed between the modules may be routed within the device. The various embodiments include triangular configurations, in such as those shown in FIGS. 3A-3C, and inline configurations, such as those shown in FIGS. 3D-3F. The set of lead connection devices 313 may be located in various locations within the device as well.

Please replace paragraph [0043] beginning at page 11, line 21 of the originally filed disclosure with the following paragraph:

[0043] In some embodiments, such as those illustrated in FIGS. 3A-3C and 3E-3F, an overmold 314₃ at least partially encapsulates each of modules 2310, 2311 and 2312. In other embodiments, such as that illustrated in FIG. 3D, at least one of the modules 310 of modular IMD 301 is located outside of overmold 314₃. Module 2312 located outside of overmold 314 may, as shown in FIG. 3D, be tethered to overmold 314, allowing module 2312 to be freely positioned some significant distance from overmold 314. Additional details relating to configurations of modules within a modular implantable medical devices and tethering of modules of an implantable medical device may be found in a U.S. Patent Application Ser. No. 10/731,869, entitled "MODULAR IMPLANTABLE MEDICAL DEVICE[[],]," assigned ~~Attorney Docket No.: 1023-318US01/P 10891.00~~.

Please replace paragraph [0046] beginning at page 12, line 16 of the originally filed disclosure with the following paragraph:

[0046] In the embodiment illustrated within FIG. 4A, the set of motion restriction elements 421 comprises a pair of elements having a plurality of non-linear bends along the length of the elements 421. These non-linear bends are intended to provide restriction of motion in multiple axes of motion. These elements 421 may be wire-like structures formed of a material such as metal. Alternatively, these elements may be constructed of fabric, fibers, and similar rigid and semi-rigid materials. The choice of a material may control the amount of motion restriction any particular motion reduction element 421 may provide. ~~Because the The~~ motion reduction elements 421 need only provide sufficient motion restriction to prevent mechanical fatigue and failure of the coupling module 423. Because the coupling module 423 may be constructed of various materials and thus require differing amounts of motion restriction, the choice of the material for the motion reduction elements 421 and coupling module 423 are interdependent.

Please replace paragraph [0062] beginning at page 17, line 1 of the originally filed disclosure with the following paragraph:

[0062] Additional details regarding overmold 722 are described in co-pending and commonly assigned U.S. Patent Application Ser. No. 10/730,873, entitled "OVERMOLD MODULE FOR A MODULAR IMPLANTABLE MEDICAL DEVICE[[],]" assigned ~~Attorney Docket No.: 1023-332US01 / P 11798.00US.~~

Please replace paragraph [0063] beginning at page 17, line 5 of the originally filed disclosure with the following paragraph:

[0063] FIG. 8A is a schematic diagram illustrating multiple modules connected by a motion reduction element within a modular medical device according to the present invention. In this embodiment[[],], two modules 810-811 are shown being contained by respective non-elastomeric components, 831 and 832 that are part of an overmold 822 as discussed above. One of the modules 811 is located adjacent to a through-hole 851 for attaching the device 801 during implantation. A second of the two modules 810 is located adjacent to a lead connection element 813 for connecting an external lead 843 to electronics within the second module 810.

Please replace paragraph [0064] beginning at page 17, line 13 of the originally filed disclosure with the following paragraph:

[0064] Additional details regarding the external lead connection to a device is described in co-pending and commonly assigned U.S. Patent Application Ser. No. 10/730,878, entitled "LEAD INTERCONNECT MODULE OF A MODULAR IMPLANTABLE MEDICAL DEVICE[[],]" assigned ~~Attorney Docket No.: 1023-334US01 / P 11799.00US.~~

Please replace paragraph [0066] beginning at page 17, line 26 of the originally filed disclosure with the following paragraph:

[0066] One skilled in the art will recognize that other embodiments for motion reduction element 826 may couple the motion reduction element 826 directly to modules 810-811. In these embodiments, motion restriction element 826 provides the same functionality by providing a support member between the modules 810-811 to reduce intermodule motion in one or more axis of motion. The choice of coupling the motion restriction element 826 to a non-elastomeric

components 831-832 or coupling the motion restriction element directly to modules 810-811 may depend upon the materials used for module housings, the motion restriction element 826, elastomeric component 833 and non-elastomeric components 831, 832. In some embodiments of the modules 810-811, electronics within the modules may be damaged during fabrication of the elastomeric component 833 due to the temperatures and related environmental conditions present when the elastomeric component 833 is made. The non-elastomeric components 831-832 may be used to create structures to contain the modules 810-811 within a constructed e-elastomeric component 833 after the elastomeric component 833 is completed. As such, electronics within the modules 810-811 may not need to encounter the undesirable fabrication conditions.

Please replace paragraph [0069] beginning at page 18, line 29 of the originally filed disclosure with the following paragraph:

[0069] Additional details regarding coupling modules are provided in co-pending and commonly assigned U.S. Patent Application Ser. No. 10/731,699, entitled “COUPLING MODULE FOR A MODULAR IMPLANTABLE MEDICAL DEVICE[[],]” assigned Attorney Docket No.: 1023-331US01 / P-11796.00.

Please replace paragraph [0072] beginning at page 19, line 20 of the originally filed disclosure with the following paragraph:

[0072] During implantation of a device 2801, the physician may manipulate the shape and orientation of the device by manipulating the settings the mechanical moving element 872 to alter the relative position of support members 861-862. Once the device is placed into a desired orientation, locking mechanism 871, such as a pin, may be inserted into the mechanical moving element 872 to retain the desired orientation of the device 801. Adhesives, cements and other materials may also be utilized to restrain the locking mechanism and mechanical orientation element 872 as needed.